I. AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

A. Listing of Claims

Claims 1-68. (Cancelled)

Claim 69. (Previously presented) A method for delivery of a therapeutic or a diagnostic agent from an initial bodily compartment to at least one target bodily compartment, the method comprising administering to the initial bodily compartment an effective transcompartmental delivery promoting amount of:

a) a polymer having multiple functional groups at least one of which is covalently bound to a therapeutic or diagnostic agent, and at least one cell uptake promoter covalently bound to said therapeutic or diagnostic agent; or

b) a polymer and at least one cell uptake promoter covalently bound thereto; the polymer further comprising multiple functional groups at least one of which is covalently bound to a therapeutic or diagnostic agent.

Claim 70. (Previously presented) The polymer of claim 69, comprising orthogonal functional groups, wherein the addition of the groups can be specified and controlled during manufacture to create a monodisperse product.

Claim 71. (Previously presented) The method of claim 69, wherein the initial bodily compartment is an extravascular site or an intravascular site.

Claim 72. (Previously presented) The method of claim 69, wherein the target bodily compartment is selected from the group consisting of circulation, central nervous system, brain, eye, and an intracellular environment.

Claim 73. (Previously presented) The method of claim 72, wherein the intracellular environment is within an epithelial cell, an endothelial cell, a phagocytic cell, a lymphocyte, a neuron, or a cancer cell.

Claim 74. (Previously presented) The method of claim 69, wherein the administering is parenterally, transmucosally or transdermally.

Claim 75. (Previously presented) The method of claim 74, wherein the transmucosally irs orally, nasally, pulmonarily, vaginally or rectally.

Claim 76. (Previously presented) The method of claim 74, wherein the parenterally is intra-arterial, intravenous, intramuscular, intradermal, subcutaneous, intraperitoneal, intraventricular, intraocular, intraorbital, or intracranial.

Claim 77. (Previously presented) The method of claim 69, wherein the administering is orally.

Claim 78. (Previously presented) The method of claim 69, wherein the polymer is selected from the group consisting of linear or branched poly(ethylene glycol), carboxymethylcellulose, dextran, polyvinyl alcohol, polyvinyl pyrrolidone, poly-1,3-dioxolane, poly-1,3,6-trioxane, an amino acid homopolymer, polypropylene oxide, a copolymer of ethylene glycol/propylene glycol, an ethylene/maleic anhydride copolymer, an amino acid copolymer, amino acids, a copolymer of polyethylene glycol and an amino acid, a polypropylene oxide/ethylene oxide copolymer, and a polyethylene glycol/thiomalic acid copolymer; or any combination thereof.

Claim 79. (Previously presented) The method of claim 69, wherein the polymer is linear or branched poly(ethyleneglycol).

Claim 80. (Previously presented) The method of claim 78, wherein the polymer has a molecular weight of about 200 to about 200,000 Daltons.

Claim 81. (Previously presented) The method of claim 80, wherein the polymer has a molecular weight of about 2,000 to about 50,000 Daltons.

Claim 82. (Previously presented) The method of claim 69, wherein the multiple functional groups are attached to said polymer at an interval.

Claim 83. (Previously presented) The method of claim 82, wherein the interval is about 100 to about 10,000 Daltons.

Claim 84. (Previously presented) The method of claim 83, wherein the interval is about 300 to about 5,000 Daltons.

Claim 85. (Previously presented) The method of claim 69, wherein the functional group comprises a ketone, an ester, a carboxylic acid, an aldehyde, an alcohol, a thiol, or an amine.

Claim 86. (Previously presented) The method of claim 82, wherein the functional group is a thiol.

Claim 87. (Previously presented) The method of claim 69, wherein the multiple functional groups are derived from a thiol compound bound to said polymer.

Claim 88. (Previously presented) The method of claim 87, wherein the thiol compound is cysteamine, 1-amino-2-methyl-2-propanethiol, or 1-amino-2-propanethiol.

Claim 89. (Previously presented) The method of claim 69, wherein the therapeutic or diagnostic agent or cell uptake promoter comprises a functional group or is derivatized to compromise a functional group.

Claim 90. (Previously presented) The method of claim 69, wherein the cell uptake promoter is selected from the group consisting of a transporter, a receptor, and a binding or targeting ligand.

Claim 91. (Currently amended) The method of claim 69, wherein the cell uptake promoter is selected from the group consisting of a vitamin, a sugar, a chemokine, a peptide vector or a non-peptide vector, ~~a retro-inverso peptide,~~ a membrane fusion peptide, a lipid, a sense oligonucleotide or an antisense oligonucleotide, an enzyme, an antibody or an antibody fragment, an antigen, a hormone, an adhesion molecule, and an analogue of the foregoing or any combination thereof.

Claim 92. (Cancelled)

Claim 93. (Previously presented) The method of claim 91, wherein the vitamin is selected from the group consisting of biotin, folate, pantothenate, B-6, and B-12.

Claim 94. (Cancelled)

Claim 95. (Cancelled)

Claim 96. (Previously presented) The method of claim 91, wherein the sugar is glucose or N-acetyl glucosamine.

Claim 97. (Previously presented) The method of claim 91, wherein the chemokine is RANTES or IL-2.

Claim 98. (Previously presented) The method of claim 91, wherein the antibody or antibody fragment recognizes CD4 or CD44.

Claim 99. (Previously presented) The method of claim 91, wherein the membrane fusion peptide is gp41 or VEGF.

Claim 100. (Previously presented) The method of claim 91, wherein the hormone is selected from the group consisting of estrogen, progesterone, LHRH, ACTH and growth hormone.

Claim 101. (Previously presented) The method of claim 91, wherein the adhesion molecule is ICAM or a lectin.

Claim 102. (Previously presented) The method of claim 91, wherein the lipid or phospholipid is stearic acid or myristic acid.

Claim 103. (Previously presented) The method of claim 69, wherein the therapeutic or diagnostic agent is a naturally occurring or artificial protein, peptide or oligonucleotide, or derivative or analogue thereof, or any other therapeutic or diagnostic chemical entity including but not limited to an organic molecule, secondary metabolite, hormone, toxin, radioactive compound, radio opaque compound or paramagnetic compound.

Claim 104. (Previously presented) The method of claim 103, wherein the therapeutic or diagnostic is a retro inverso protein or peptide, or a portion thereof.

Claim 105. (Previously presented) The method of claim 69, wherein the therapeutic or diagnostic agent comprises a thiol group or is derivatized to comprise a functional group.

Claim 106. (Currently amended) The method of claim 103, wherein the therapeutic or diagnostic agent ~~or cell uptake promoter peptide~~ comprises a Tat-inhibitory polypeptide, comprising an amino acid sequence of: R-Arg-Lys-Lys-Arg-Arg-Gln-Arg-Arg-Arg-X-(biotin)-Cys-NH_2 (SEQ ID NO:1), and biologically and pharmaceutically acceptable salts thereof, stereo, optical and geometrical isomers thereof, including retro inverso analogues, where such isomers exist, as well as the pharmaceutically acceptable salts and solvates thereof, wherein R comprises the residue of a carboxylic acid or an acetyl group; and X is a Cys or Lys residue.

Claim 107. (Currently amended) The method of claim 104, wherein the therapeutic agent ~~or uptake enhancer comprising a thiol compound~~ comprises an amino acid sequence of:
N-acetyl-Arg-Lys-Lys-Arg-Arg-Gln-Arg-Arg-Arg-Cys-(biotin)-Cys-NH_2 (SEQ ID NO:2)
N-acetyl-Arg-Lys-Lys-Arg-Arg-Gln-Arg-Arg-Arg-Lys-(biotin)-Cys-NH_2 (SEQ ID NO:3)
N-acetyl-Arg-Lys-Lys-Arg-Arg-Gln-Arg-Arg-Arg-D-Cys-(biotin)-Cys-NH_2 (SEQ ID NO:4)
N-acetyl-Arg-Lys-Lys-Arg-Arg-Gln-Arg-Arg-Arg-D-Lys-(biotin)-Cys-NH_2 (SEQ ID NO:5)
N-acetyl-Gln-Lys-Lys-Arg-Arg-Gln-Arg-Arg-Arg-D-Lys-(biotin)-Cys-NH_2 (SEQ ID NO:6)
N-acetyl-Arg-Lys-Lys-Arg-Arg-Pro-Arg-Arg-Arg-Cys-(biotin)-Cys-NH_2 (SEQ ID NO:7).

N-acetyl-DCys-DLys-(biotin)-DArg-DArg-DArg-DGln-DArg-DArg-DLys-DLys-DArg-NH_2 (SEQ ID NO:8) or biologically and pharmaceutically acceptable salts thereof.

Claims 108-193 (Cancelled)